

## CLAIMS

What is claimed is:

1. A miniaturized multi-channel transmitter, comprising:  
a signal processing chip, wherein the signal processing chip includes:  
a plurality of input preamplifiers;  
a plurality of selective second amplifiers, wherein each selective second amplifier is connected to a different input preamplifier;  
a subcarrier oscillator connected to the selective second amplifiers;  
a timing circuit connected to the subcarrier oscillator;  
a calibration circuit connected to the timing circuit; and  
a 1-of-several decoder connected to the timing circuit.
2. The transmitter of claim 1, wherein each of the preliminary amplifiers includes an output terminal connected to a pair of input terminals of a different selective second amplifier.
3. The transmitter of claim 1, wherein each of the selective second amplifiers includes a pair of input terminals connected to an output terminal of a different preamplifier.
4. The transmitter of claim 3, wherein each of the selective second amplifiers includes a select terminal connected to the 1-of several decoder.

5. The transmitter of claim 4, wherein each of the selective second amplifiers includes an output terminal connected to an input terminal of the subcarrier oscillator.
6. The transmitter of claim 1, wherein the subcarrier oscillator includes an input terminal connected to an output terminal of each of the selective second amplifiers and the calibration circuit.
7. The transmitter of claim 6, wherein the subcarrier oscillator is connected to first and second monostable multivibrators.
8. The transmitter of claim 7, wherein the subcarrier oscillator includes:  
a first clock terminal connected to the timing circuit; and  
a second clock terminal connected to one of the first and second monostable multivibrators.
9. The transmitter of claim 1, wherein the timing circuit includes a first plurality of toggle-connected flip-flops.
10. The transmitter of claim 9, wherein the flip-flops are type D flip-flops.
11. The transmitter of claim 1, wherein the calibration circuit includes an input terminal connected to the timing circuit.

12. The transmitter of claim 11, wherein the calibration circuit includes a select terminal connected to the 1-of-several decoder.
13. The transmitter of claim 15, wherein the calibration circuit includes an output terminal connected to an input terminal of the subcarrier oscillator.
14. The transmitter of claim 1, wherein the 1-of-several decoder is connected to a select terminal of each of the selective second amplifiers and the calibration circuit.
15. The transmitter of claim 1, wherein the signal processing chip further includes:  
a temperature circuit connected to the timing circuit; and  
a reference circuit connected to the timing circuit.
16. The transmitter of claim 15, wherein the temperature circuit includes a select terminal connected to the 1-of-several decoder.
17. The transmitter of claim 16, wherein the temperature circuit includes an output terminal connected to an input terminal of the subcarrier oscillator.
18. The transmitter of claim 15, wherein the reference circuit includes a select terminal connected to the 1-of-several decoder.

19. The transmitter of claim 18, wherein the reference circuit includes an output terminal connected to an input terminal of the 1-of-several decoder.
20. The transmitter of claim 1, wherein the signal processing chip further includes first and second monostable multivibrators connected to the subcarrier oscillator.
21. The transmitter of claim 20, wherein the first and second monostable multivibrators are connected to the timing circuit.
22. The transmitter of claim 1, wherein the signal processing chip further includes an on-off switch.
23. The transmitter of claim 22, wherein the on-off switch is a magnetically activated switch.
24. The transmitter of claim 1, wherein the signal processing chip is an application specific integrated circuit.
25. The transmitter of claim 24, wherein the signal processing chip is a BiCMOS chip.
26. The transmitter of claim 25, wherein the signal processing chip has a length less than or equal to 2mm and a width less than or equal to 2mm.

27. The transmitter of claim 1, further comprising a substrate having the signal processing chip mounted thereon.
28. The transmitter of claim 27, further comprising a radio frequency oscillator mounted on the substrate.
29. The transmitter of claim 28, wherein the radio frequency oscillator includes an input terminal connected to an output terminal of the signal processing chip.
30. The transmitter of claim 28, further comprising an antenna connected to an output terminal of the radio frequency oscillator.
31. The transmitter of claim 30, further comprising a switch activator mounted on the substrate.
32. The transmitter of claim 31, wherein the switch activator is a hall-effect magnetic sensor.
33. The transmitter of claim 31, further comprising a housing that encloses the substrate.

34. The transmitter of claim 33, wherein the housing includes a base portion and a lid portion connected to the base portion.

35. The transmitter of claim 34, wherein the base portion includes a plurality of microterminals.

36. The transmitter of claim 34, wherein the lid portion is slidably connected to the base portion.

37. The transmitter of claim 33, further comprising a battery enclosed by the housing.

38. The transmitter of claim 37, wherein the transmitter has a length less than or equal to 10mm, a width less than or equal to 10mm and a thickness less than or equal to 5mm.

39. A miniaturized multi-channel wireless telemetry system, comprising:

a transmitter, wherein the transmitter includes:

a signal processing chip, wherein the signal processing chip includes:

a plurality of input preamplifiers;

a plurality of selective second amplifiers, wherein each selective second amplifier is connected to a different input preamplifier;

a subcarrier oscillator connected to the selective second amplifiers;

a timing circuit connected to the subcarrier oscillator;

a calibration circuit connected to the timing circuit; and

a 1-of-several decoder connected to the timing circuit; and  
a receiver in communication with the transmitter.

40. The system of claim 39, wherein the receiver includes:

an antenna;

a radio receiver connected to the antenna; and

a demodulator connected to the radio receiver.

41. The system of claim 40, wherein the demodulator includes:

a pulse separator circuit;

a counter circuit connected to the pulse separator circuit;

a digital-to-analog converter circuit connected to the counter circuit;

a plurality of amplifier/filter circuits connected to the digital-to-analog converter circuit;

a plurality low-pass filter circuits, wherein each of the low-pass filter circuits is  
connected to a different amplifier/filter circuit; and  
a plurality of block/buffer circuits, wherein each of the block/ buffer circuits is connected  
to a different low-pass filter circuit.

42. The system of claim 41, wherein the demodulator further includes a plurality of l/f  
converters, wherein each of the l/f converters is connected to a different low pass filter circuit.

43. The system of claim 42, wherein each of the l/f converters is connected to a  
different block/buffer circuit.